

We claim:-

1. A formulation for use in chrome-free and chrome tanning, comprising a
5 clay mineral which, after vigorous stirring for 30 minutes in water at 50°C,
has a number average particle diameter of less than 2 μm or a bimodal size
distribution with a first, finely divided fraction whose number average
particle diameter is less than 0.5 μm and a second, coarser fraction whose
10 number average particle diameter is less than 5 μm , determined in each
case by the method according to ISO 13320-1, by combined laser light
diffraction and light scattering, the amount of the first, finely divided
fraction being from 10 to 90% by weight, and one or more substances from
one or more of the following groups: organic polymers, aldehyde tanning
15 agents, sulfone tanning agents, resin tanning agents, phenol tanning agents,
fatliquoring agents, vegetable tanning agents, dyes and pigments.
2. A formulation as claimed in claim 1, wherein the aldehyde tanning agent is
glutaraldehyde or a derivative of glutaraldehyde, in particular an acetal.
- 20 3. A formulation as claimed in either of claims 1 and 2, wherein the clay
mineral has a number average particle diameter of less than 1 μm .
4. A formulation as claimed in any of claims 1 to 3, wherein substances
25 which, owing to their chemical structure, are capable of forming strong
hydrogen bridge bonds with the clay mineral, in particular urea or urea
derivatives, alcohols, polyols, propylene carbonate, organic amides,
urethanes, saccharides or derivatives of saccharides, in particular
nitrocellulose, sulfite cellulose or ethylhexylcellulose, are added to the clay
mineral before or during the use thereof as a tanning agent.
- 30 5. A formulation as claimed in any of claims 1 to 4, wherein the clay mineral
is a phyllosilicate.
6. A formulation as claimed in any of claims 1 to 5, wherein the phyllosilicate
35 is a kaolinite, muscovite, montmorillonite, smectite or bentonite, in
particular a hectorite.

7. The use of clay minerals which, after vigorous stirring for 30 minutes in water at 50°C, have a number average particle diameter of less than 2 μm or a bimodal size distribution with a first, finely divided fraction whose number average particle diameter is less than 0.5 μm and a second, coarser fraction whose number average particle diameter is less than 5 μm , the amount of the first, finely divided fraction being from 10 to 90% by weight, as tanning agents or for the preparation of tanning agents.
8. The use as claimed in claim 7, wherein the clay minerals have a number average particle diameter of less than 1 μm .
9. The use as claimed in claim 7 or 8, wherein substances which, owing to their chemical structure, are capable of forming strong hydrogen bridge bonds with the clay mineral, in particular urea or urea derivatives, alcohols, polyols, propylene carbonate, organic amides, urethanes, saccharides or derivatives of saccharides, in particular nitrocellulose, sulfite cellulose or ethylhexylcellulose, are added to the clay minerals before or during the use thereof as tanning agents.
10. The use as claimed in any of claims 7 to 9, wherein the clay mineral is a phyllosilicate.
11. The use as claimed in claim 10, wherein the phyllosilicate is a kaolinite, smectite, muscovite, montmorillonite or bentonite, in particular a hectorite.
12. The use of clay minerals as claimed in any of claims 7 to 11, wherein the clay minerals are employed as tanning agents or for the preparation of tanning agents for preliminary tanning, in particular for chrome-free preliminary tanning.
13. The use of clay minerals as claimed in any of claims 7 to 11, wherein the clay minerals are employed as tanning agents or for the preparation of chrome or chrome-free tanning agents for retanning.